UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/849,354	05/18/2004	Iliyan N. Nenov	6570.P112	6296

45062 7590 04/18/2007 SAP/BLAKELY 12400 WILSHIRE BOULEVARD, SEVENTH FLOOR LOS ANGELES, CA 90025-1030	EXAMINER	
	PEIKARI, BEHZAD	

ART UNIT	PAPER NUMBER
2189	

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	04/18/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

PTOL-90A (Rev. 10/06)

	Application No.	Applicant(s)
Office Action Summary	10/849,354	NENOV ET AL.
	Examiner	Art Unit
	B. James Peikari	2189

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on <u>06 February 2007</u>.

2a)☐ This action is **FINAL**.   2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-34* is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-5 and 9-34* is/are rejected.

7)☒ Claim(s) *6-8* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on <u>18 May 2004</u> is/are: a)☒ accepted or b)☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☐ All   b)☐ Some * c)☐ None of:

      1.☐ Certified copies of the priority documents have been received.

      2.☐ Certified copies of the priority documents have been received in Application No. _____.

      3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1)☒ Notice of References Cited (PTO-892)

2)☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3)☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.

4)☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.

5)☐ Notice of Informal Patent Application (PTO-152)

6)☐ Other: _____.

DETAILED ACTION

Specification

1.   Applicant's cooperation is requested in correcting any errors of which applicant

may become aware in the specification.

For example, the disclosure is objected to because of the following informalities:

on page 10, line 13, "any" should replace "nay".

Appropriate correction is required.

Claim Rejections - 35 USC § 101

2.   35 U.S.C. 101 reads as follows:

> Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

3.   Claims 13-21 are rejected under 35 U.S.C. 101 because the claimed invention is

directed to non-statutory subject matter. As presently claimed, the scope of "machine-

accessible medium" may include a virtual object and/or data structure (note, for

instance, the database in applicant's Figure 8), which is not one of the four statutory

categories of invention noted above. See also MPEP 2106.

Claim Rejections - 35 USC § 102

4.   The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that

form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

5.   Claims 1-2, 4, 9, 13-16, 22-25, 30-34 are rejected under 35 U.S.C. 102(b) as being anticipated by Herring et al., U.S. 5,860,081.

(A)   The independent claims 1, 13, 22, and 30, contain similar features, of which the features claim 1 are shown below as an example:

caching first data received from a data source within a static cache as stable data, the static cache having a fixed size;

evicting a portion of the stable data within the static cache to a dynamic cache when the static cache reaches a threshold fill level; and

enrolling the evicted portion of the stable data into the dynamic cache as soft data, the dynamic cache having a dynamically changing size.

It is noted that the claimed "stable data" and "soft data" have no intrinsic distinction from each other besides that fact that the first is located in the static memory and the second is located in the dynamic memory, as defined in paragraph [0029] of applicant's specification. For example, in a processor having an L1 and an L2 cache, the data in the L1 cache would be more "stable", according to applicant's definition, because the data in the L2 cache are closer to being evicted to a lower level memory (and, thus, out of the processor). Further, as for evicting at a "threshold fill level", this language would include when the static cache is actually full. Finally, because cache hierarchies are designed to evict data from a higher level cache to a lower level cache,

all that is needed to teach the independent claim features noted above is a prior art system wherein an L1 cache is of a fixed size (static) and the L2 cache has an adjustable (changing) size.

Herring et al. teach such a system as described above, wherein L1 is a typical fixed buffer and the L2 cache is dynamically sized depending on the needs of the system (note, e.g., column 2, line 65).

(B)   Regarding claims 2, 4, 14-16, 23-25 and 31-33, dynamic caches are always sized as a function of two criteria: (1) how much data must be stored and (2) how much memory is available, with criteria (2) always being the dominant criteria. Herring et al. is no exception.

(C)   Regarding claim 9, Herring et al. teach a caching method, further comprising: intercepting a request for second data from the data source; determining whether the second data is cached within either of the static cache and dynamic cache; and providing the second data from either of the static cache and the dynamic cache instead of the data source, if the determining determines that the second data is cached (note column 5, lines 20-24, of Herring et al.; note further that retrieving data from caches instead of a lower level memory was the main reason for having caches).

(D)   As for claim 34, evicting at a "threshold fill level" would include when the static cache is actually full, as in Herring et al.

Claim Rejections - 35 USC § 103

6.   The previous rejections under 35 U.S.C. 103(a) are withdrawn due to the

remarks attached to the amendment filed on February 6, 2007.

7.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

The factual inquiries set forth in *Graham* v. *John Deere Co.*, 383 U.S. 1, 148

USPQ 459 (1966), that are applied for establishing a background for determining

obviousness under 35 U.S.C. 103(a) are summarized as follows:

1.   Determining the scope and contents of the prior art.
2.   Ascertaining the differences between the prior art and the claims at issue.
3.   Resolving the level of ordinary skill in the pertinent art.
4.   Considering objective evidence present in the application indicating obviousness or nonobviousness.

8.   Claims 3, 5, 10-12, 20-21 and 26 are rejected under 35 U.S.C. 103(a) as being

unpatentable over Herring et al., U.S. 5,860,081, in view of Bird, U.S. 6,321,235.

These claims are directed to well known features of cache memory design, which

were not explicitly mentioned in the disclosure of Herring et al.

(A)   Regarding claims 3, 5, 10 and 20, Bird teaches a caching method,

wherein evicting data according to a Least Recently Used eviction policy (column 10,

lines 39-42). With further regard to claim 10, Bird teaches a caching method, further

comprising moving the second data to a most recently used position within the static

cache, if the determining determines that the second data is cached (note that it was

abundantly obvious to move most recently used data to a most recently used position).

(B)   Regarding claims 11 and 26, Bird teaches a caching method, wherein the

first cache and the second cache comprise a hybrid-cache within a single memory

device (column 5, lines 12-15).

(C)   Regarding claims 12 and 21, Bird teaches a caching method, wherein the

stable data and the soft data comprise objects of an object oriented language (column

2, lines 58-61).

It would have been obvious on one having ordinary skill in the art the time the

invention was made to incorporate the features noted above from the Bird system into

the Herring et al. system since (A) LRU/MRU implementations in cache memory took

advantage of the principle of temporal locality of reference to provide faster data

access, (B) utilizing a single memory device for two different functions, as opposed to

two different memory devices, was usually less expensive and often reduced the

distance that signals had to travel between the two, resulting in faster data transfers,

and (C) the use of object oriented language was cornerstone of efficient modern data

processing systems.

9.   Claim 17 is rejected under 35 U.S.C. 103(a) as being unpatentable over Herring

et al., U.S. 5,860,081, in view of Bird, U.S. 6,321,235, further in view of Stakutis et al.,

U.S. Patent Application 2003/0105936 A1.

The Herring et al./Bird combination disclosed above fails to mention caching the soft data within the dynamic cache according to a canonical mapping scheme. Stakutis teaches such a canonical mapping scheme (paragraphs 33 and 34). However, it would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the mapping of Stakutis into the Herring et al./Bird combination disclosed above, since this would have permitted more flexible storage mapping (note Stakutis, paragraph 42).

10.   Claims 27-29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Herring et al., U.S. 5,860,081, in view of Bird, U.S. 6,321,235, further in view of Nguyen, U.S. Patent Application 2003/0172145 A1.

(A)   Regarding claim 27, the Herring et al./Bird combination disclosed above does not teach a caching server, and wherein the data source comprises an Internet. Nguyen teaches a caching server (paragraph 541), wherein the data source comprises "an" Internet (paragraph 139).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate this feature of Nguyen into the Herring et al./Bird combination disclosed above, since this would have improved scalability, availability, reliability, manageability, adaptability, security, performance, and provided an open system of ISP architecture (paragraph 33).

(B)   Regarding claim 28, Nguyen teaches a system, wherein the system comprises an Application Server, wherein the requests for the first data from the data

source comprise requests from clients of the Application Server (paragraph 546), and

wherein the data source comprises at least one database (paragraphs 563 and 855).

(C)   Regarding claim 29, Nguyen teaches a system of claim 22, wherein the

Application Server comprises one of a Java based Application Server and a .NET based

Application Server (paragraphs 818 and 849).

Allowable Subject Matter

11.   Claims 6-8 are objected to as being dependent upon a rejected base claim, but

would be allowable if rewritten in independent form including all of the limitations of the

base claim and any intervening claims.

Response to Arguments

12.   The remarks attached to the amendment filed on February 6, 2007 have been

carefully considered. Of the three reasons presented by applicant to overcome the

rejection, only Reason #2 was deemed convincing. Consequently, the previous

rejections under 35 U.S.C. 103(a) are withdrawn. Reason #1 and Reason #3 were not

deemed convincing, however since the previous rejections have been withdrawn, these

are moot.

Conclusion

13.   Any inquiry concerning this communication or earlier communications from the

examiner should be directed to James Peikari whose telephone number is (571) 272-

4185. The examiner is generally available between 7:00 am and 7:30 pm, EST,

Monday through Wednesday, and between 5:30 am and 4:00 pm on Thursday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's

supervisor, Reginald Bragdon, can be reached at (571) 272-4204. The fax phone

number for the organization where this application or proceeding is assigned is 571-

273-8300.

Information regarding the status of an application may be obtained from the

Patent Application Information Retrieval (PAIR) system. Status information for

published applications may be obtained from either Private PAIR or Public PAIR.

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For more information about the PAIR system, see http://pair-direct.uspto.gov. Should

you have questions on access to the Private PAIR system, contact the Electronic

Business Center at 866-217-9197 (toll-free).

B. James Peikari
Primary Examiner
Art Unit 2189
4/14/07